Request for Information

for

A Converged Server Solution

for

Consolidated Technology Services

C14-RFI-113

Issued: June 10, 2014

1.0 DESCRIPTION

CTS is seeking information that will help shape the nature of server infrastructure acquisitions in the future. This is in support of server infrastructure for all CTS-managed services, such as the private cloud and messaging services.

CTS is well into the migration of CTS infrastructure to the new State Data Center. Before and during the migration, CTS leveraged virtual server technologies from VMware. As a result, over 70% of servers are now virtual.   Also, most of the server hardware was moved to IBM BladeCenter and System X hardware.

The CTS infrastructure now has the following characteristics:
- Most server capacity is on IBM BladeCenter equipment, with some IBM System X rack servers. There is also a small amount of IBM V-series and 3524 storage equipment attached to these environments.
- The messaging environment is running on HP C7000 blade server systems with HP storage attached.
- The majority of SAN server storage is on EMC VMAX storage, using both the Fiber Channel and iSCSI storage protocols.
- Netapp storage is being implemented for NAS (NFS and CIFS) to support customers and to support virtual servers for the private cloud project.
- All network equipment including blade switches in the IBM BladeCenters are Cisco Nexus class.
- The network connectivity down to the server is primarily 10Gbit, utilizing end of row switching.

CTS has several projects underway which may provide an opportunity to re-examine server hosting infrastructure choices and practices:
- CTS is using VMware technologies to implement a private cloud service based on vCloud Automation Center. As the functionality of the private cloud service improves over time, it is expected that the majority of servers hosted at CTS will migrate into it.
- The messaging environment will be migrated to Exchange 2013. This environment is currently envisioned as multiple physical servers with internal storage. Little of this environment is expected to be provisioned on virtual servers.
- CTS will be adding disaster recovery options to current services and will be looking for technologies that will support this effort.

CTS seeks information and advice on one or more of the following server hosting approaches:

Non-Converged: Continue to purchase servers from a vendor and integrate them with virtualization, storage, and networking technologies.

Converged Architecture: Work with a vendor or group who has developed a set of blueprinted architectures for integration of server, storage, and network technologies and may have an integrated maintenance and support strategy.

Fully Converged: Purchase a turn-key solution that is fully converged and pre-built. This may also include additional services to set up and maintain the infrastructure over time.

2.0 RESPONSES DUE

We are requesting that vendors respond with any preprinted materials that would provide the information we request, and detailed answers to the questions listed in Section 3 of this RFI.

Please provide your responses in an electronic format, such as Acrobat or Microsoft Word. This will assist in our review process. We value your time and do not want you to spend your time preparing lengthy responses. After reviewing the responses, vendors may be selected for presentations to be given locally in the Olympia area, or via the web. Please include in your response how you would propose to do a presentation if you are selected.

Vendors should also be prepared to provide fully-functional evaluation copies of any proposed software upon request, as a follow up to this RFI.

Responses to this RFI should be submitted to the Project Coordinator no later than July 7th, 2014 at 4:00 p.m., Pacific Daylight Time.

Please do not cut and paste your responses into this RFI. Instead provide your response as a separate document and include numbers referencing the RFI section you are responding to. Only the one electronic copy need be submitted.

E-mail is the preferred method of delivery. Hardcopy responses and materials will be accepted; faxed responses will not. Please submit responses to the RFI Coordinator at the following address and/or email:

Mailing Address
Attn: **Alexandria Smith**
Consolidated Technology Services
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1500 Jefferson Street
PO Box 41501
Olympia, WA 98501

Email Address
Alex.Smith@cts.wa.gov

Questions should be directed to the RFI Coordinator at (360) 407-9082

3.0 QUESTIONS RELATED TO EACH APPROACH

Vendors may provide information about any one or all of the three approaches, or even suggest alternative approaches.

1.0 Non-Converged:

1.1 Do you propose that CTS should use blade systems, rack systems or both? Explain the recommended approach for these representative uses:
    1.1.1 Large VMware hosts with two processors and up to 500GB of memory.
    1.1.2 Microsoft Exchange infrastructure for 60,000 users that is currently envisioned as three groups of eight rackable servers each with 128 GB of memory, two 10-core Ivy Bridge processors, and seventeen 1.2TB 10,000 RPM disk drives for Exchange mailbox storage. Each group will be completely independent and have a Database Availability Group (DAG). One of the three groups will be in a remote location.
    1.1.3 Small physical servers (eight total cores, small amounts of memory) that cannot be virtualized due to licensing or service governance issues.

1.2 Explain whether your recommended approach will integrate with VMware VSphere, VMware VCloud Automation Center, Netapp FAS storage, or EMC VMax storage products or Microsoft Exchange.

1.3 Does your recommended approach include guide books or instructional materials on how to size and integrate infrastructure that includes VMware products and disparate storage solutions (e.g. Netapp and EMC)? Please provide examples.

1.4 Does your recommended approach provide guide books or instructional materials on how to size and integrate the servers with Microsoft Exchange 2013? Please provide examples.

1.5 Explain any additional vendor-provided services that can assist in integration of your recommended approach with:
    1.5.1 VMware products
    1.5.2 Storage from various vendors (e.g.Netapp and EMC)
    1.5.3 Networking environments based on Cisco Nexus switches

1.6 What information does your recommended approach provide about product compatibility for the following cases?
    1.6.1 Server compatibility and certifications for use with VMware products.
    1.6.2 Compatibility with other storage devices (e.g. Netapp and EMC) and protocols for use with VMware and Windows operating systems.
    1.6.3 Recommended levels of firmware and components for use with VMware and other products.

1.7 If blade systems are part of your recommended solution, approximately what percentages of your customer shipments use Cisco network components instead of other solutions?

1.8 If the percentage is zero, explain how your recommended solution integrates into a Cisco Nexus environment. Can customers use their existing tools for network monitoring and configuration?

1.9 If your recommended solution includes blade servers, provide budgetary pricing for a 14-server solution using Cisco network components without any Fiber Channel. Using the requirements below, list the cost of the blade platform before compute blades are added and the cost of an individual blade:
- Two 10-Core Intel Ivy Bridge processors running at 2.5Ghz or better
- At least 500 GB of memory
- No disk drives
- USB for booting VMware
- Two 10Gbit NICs
- Two Cisco 10Gbit capable switches or Cisco Fabric Extenders
- Three years of 24x7 onsite support with 4-hour response time.

1.10 Separately, provide budgetary pricing to add 14 more servers to the above platform.

1.11 If your recommended solution includes rack-mounted servers, provide budgetary pricing for one rack server that is independent of the blade platform with:
- Two 10-Core Intel Ivy Bridge processors running at 2.5Ghz or better
- At least 500 GB of memory
- No disk drives
- USB for booting VMware
- Two 10Gbit NICs

1.12 Give the three biggest advantages that differentiate your recommended solution from competing products in the market place.

2.0 Converged Architecture:

2.1 Describe your recommended program for converged architecture:
    2.1.1 Specific advantages.
    2.1.2 Specifically how using the converged architecture solution will improve efficiencies at CTS. What work that we do today will be eliminated?
    2.1.3 What differentiates the solution from others in the marketplace?
    2.1.4 What are the requirements to be in the program?
    2.1.5 Which products are included in the program?
    2.1.6 Are both blade and rack server solutions included?
    2.1.7 How do customers access information about the architecture?
    2.1.8 What happens when the customer needs something that is not provided in the architecture?

2.1.9 How often are updates made to the architecture? What is the typical time it takes to certify the architecture for upgrades to a new major release of VMware products?

2.1.10 Are firmware levels, software versions, and patch levels specified in the architecture? Are they pre-tested? If so, then how?

2.2 Describe any services that improve support for the converged architecture. Do those services include support for VMware products? Explain how the vendors of the hardware and VMware work together to improve support.

2.3 What additional costs are specific to the converged architecture or support services?

2.4 Does the customer maintain separate support contracts with each vendor or can they purchase them together? Is there a lead vendor?

2.5 Can the infrastructure also be used for non-virtual servers and storage (such as CIFS for file shares, storage for non-VMware environments, and for servers that are not virtual)?

2.6 Are there training classes tailored to customers who use the architecture?

2.7 If Cisco switches or fabric extenders are not part of the converged architecture, explain how your solution can be tightly integrated with a network environment based on Cisco Nexus switches.

2.8 Explain any special integrations with VMware VSphere, VMware VCloud Automation Center, Netapp FAS storage, or EMC VMax storage products.

2.9 Describe how your recommended solution would work for:

2.9.1 Large VMware hosts with two processors and up to 500GB of memory.

2.9.2 Microsoft Exchange infrastructure, currently envisioned as three sets of eight rackable servers each with 128 GB of memory, two 10-core Ivy Bridge processors, and seventeen 1.2TB 10,000 RPM disk drives for Exchange mailbox storage. Each group will be completely independent and have a Database Availability Group (DAG). One of the three groups will be in a remote location.

2.9.3 Small physical servers (up to eight total cores, small amounts of memory) required due to licensing or internal governance issues.

2.10 Provide budgetary pricing for a 14-server solution without any Fiber Channel capability. The pricing should show the cost of the blade platform before compute blades are added and the cost of an individual server:

- Two 10-Core Intel Ivy Bridge processors running at 2.5Ghz or better
- At 500 GB of memory
- No disk drives
- USB for booting VMware
- Two 10Gbit NICs
- Two 10Gbit capable switches or Cisco Fabric Extenders
- Three years of 24x7 on-site support with 4-hour response

2.11 What would be the cost to add 14 additional servers to this configuration?

2.12 Provide the budgetary cost of a storage environment with 60 TB of usable capacity with the following characteristics:

- Peak 25,000 IOPS with a read/write percentage of 60/40 that is mainly for virtual servers with a response time less than 10millseconds.
- 10G networking.

2.12.1 Show how the capacity calculations are made.

2.12.2 Data de-duplication or compression is acceptable.

2.12.3 There must be at least 25% free space.

2.12.4 Licensing for replication to a similar storage device must be included.   If licensing is capacity based, assume that 20TB of data will be replicated.

2.12.5 Must include a way to snap copies of VMware servers in storage with 10% reserve.

2.12.6 Specify whether the solution will use iSCSI or NFS and why. Solutions without fiber channel are preferred.

2.12.7 Show the costs of I/O acceleration through tiering or

2.12.8 Specify the power consumption in watts.

3.0 Fully Converged:

3.1 Describe your fully converged solution:

3.1.1   How the infrastructure is provided.

3.1.2   How will the solution will improve efficiencies at CTS. What work will be eliminated by adopting a fully converged solution? What other efficiencies will be obtained?

3.1.3   What differentiates your solution from other fully converged solutions in the marketplace?

3.1.4   Describe the installed base. What other state governments have used the solution?

3.1.5   Describe the various configurations available. How much capacity in terms of storage, memory, and processor cores are available in the entry level configuration? What are the components used in the solution?

3.1.6   How often are the configurations updated? How soon are new releases of VMware or server products added to the architecture?

3.1.7   How is licensing for components handled?

3.1.8   Explain what is flexible and what is pre-determined in the solution:

3.1.8.1 Increasing the capacity of processors and storage.

3.1.8.2 Between the use of fiber channel, iSCSI, and NFS storage for virtual servers in the solution.

3.1.8.3 Can storage outside the solution be accessed by CIFS? NFS, iSCSI? Fiber Channel?

3.1.8.4 Can the storage inside the solution be used to provide capacity to servers outside the solution?

3.1.8.5 Are there limitations on what can or can't be added to the solution? (example: what if there is a specific software package that must be included and it integrates directly with the hypervisor).

3.2 After implementation of the infrastructure, how is it maintained on the latest releases of firmware, software, etc.? Are updates brought out in pre-tested bundles? Can all updates be installed non-disruptively?

3.3 Explain any special integrations with VMware VSphere, VMware VCloud Automation Center, Netapp FAS storage, or EMC VMax storage products.

3.4 Describe options to replicate to another site for business continuity or disaster recovery. Can the storage replicate data to infrastructure that uses another brand of storage? Must it replicate to another converged system?

3.5 Describe any special integration with a Cisco Nexus network environment.

3.6 Explain the services necessary to install and implement a configuration.

3.7 Can the solution be installed in customer cabinets or must it be installed in vendor-supplied cabinets.

3.8 Explain the training necessary for CTS staff to maintain and to use the solution.

3.9 Describe and provide pricing for an entry-level configuration that is appropriate for CTS.

    3.9.1 Provide budgetary pricing for a configuration capable of hosting 500 virtual servers each with 8GB of memory and a 100GB disk drive. Briefly explain how the configuration was sized. Include the costs of any services needed to implement and maintain it.

    3.9.2 Describe how the initial configuration described be upgraded to support a larger capacity.

    3.9.3 Provide technical specifications including IOPS, number and type of processors, amount of memory, and the number and type of disk drives.

    3.9.4 Contrast cost for both a customer-maintained and a fully maintained model of support if they both exist.

    3.9.5 Include any services necessary for installing and initial implementation.

4.0 DISCLAIMERS

This RFI is issued solely for information and planning purposes only and does not constitute a solicitation. The issuance of this RFI and your preparation and submission of information do not commit CTS to any contractual relationship, directly or indirectly. CTS will not reimburse or make payment for any costs incurred in the preparation and submittal of your response. The representations made by the Vendor in their Reponses will be considered material representations of fact upon which reliance shall be placed if CTS determines to enter into a subsequent RFP or contract.

Response Property of CTS
All materials submitted in response to this RFI become the property of CTS. CTS has the right to use any of the ideas presented in any such materials.

Proprietary Information
Any information contained in the response that is proprietary or confidential must be clearly designated. ***Marking of the entire response as proprietary or confidential will neither be***

accepted nor honored. CTS will not accept responses where pricing is marked proprietary or confidential.

To the extent consistent with chapter 42.56 RCW, the Public Disclosure Act, CTS will maintain the confidentiality of Vendor's information marked "confidential" or "proprietary." If a request is made to view Vendor's proprietary information, CTS will notify Vendor of the request and of the date that the records will be released to the requester unless Vendor obtains a court order enjoining that disclosure. If Vendor fails to obtain the court order enjoining disclosure, CTS will release the requested information on the date specified.